

REMARKS

Claims 12 and 13 were rejected for a lack of particularity, in that, asynchronous communications was purportedly not taught in the specification. Claims 1 and 8 were rejected as unpatentable over Beauducel in view of Palmer. Claims 2-4 and 11 were rejected as unpatentable over Beauducel in view of Palmer in view of Potratz. Claim 5 was rejected as unpatentable over Beauducel in view of Palmer in view of Scott. Claims 6 and 7 were rejected Beauducel in view of Palmer in view of AAPA. Applicant requests reconsideration.

What is absent from the examination is a recognition that obviousness is viewed in terms of both the problem solved and the solution thereto. In particular, the sigma delta modulators are used for modulating an analog signal by pulse width modulation as to enable the transmission of a digital signal to represent the analog signal without the use of inherent synchronization, that is, to provide asynchronous communications preferably in laser systems.

The specification in the background states the problem solved regarding the prior use of synchronization. "To determine the ordering of the least to most significance bits of the data words in the serial bit stream, unique and easily identifiable synchronization frame words are periodically inserted into the serial data stream. These synchronization frames words are overhead data and are typically one to ten percent of the informational data words. This overhead data increases the required rate of bits transmitted per second to $(2fn(1+s/100))$ bps where s is the percentage

1 of the serial bit stream associated with synchronization frame
2 words. To accomplish the communications at the original data bit,
3 the serial stream including the frame words and redundant error
4 correction bits must be reclocked to a higher data rate having a
5 shorter bit duration time. In order to maintain data rate of the
6 data words when the serial bit stream has additional
7 synchronization frame words, the serial bit stream will be clocked
8 at a higher rate. The received data stream must also therefore be
9 reclocked to recover the original data." "It is desirable to
10 eliminate the synchronization and forward error correction so as to
11 reduce that total amount of data bits transmitted for improved
12 channel communication efficiency. One problem with conventional
13 communications crosslink is the transmission of synchronization
14 frame words and redundant error correction data bits." "Another
15 problem with conventional communications crosslinks is the power
16 required for the additional hardware needed to reclock the data
17 streams at higher data rate that further serves to decrease
18 bandwidth efficiency."

19
20 The specification also teaches that an object of the invention
21 is to transmit a binary signal representative of the analog signal.
22 "Another object of the invention is to provide a laser crosslink
23 for communicating a binary signal using sigma delta modulation
24 prior to transmission and digital filtering after reception for
25 generating a digital signal representative of the analog input
26 signal." "Hence, the present invention is directed to communicating
27 in binary form an analog signal using a sigma delta modulator and

1 recovering a digital samples of the analog signal using a digital
2 filter."

3
4 And finally, the specification directly teaches that the
5 transmission does not use synchronization thereby traversing the 35
6 USC 112 rejection as to claims 12 and 13. "No synchronization is
7 needed between the two satellites because the output of the digital
8 filter may be sampled at any time to reconstruct signal samples."
9 It should be naturally understood by anyone skilled in the art that
10 the lack of synchronization is, by definition, asynchronization. A
11 claim is naturally couched in positive terms, that is, what it is,
12 rather than, what it is not. Here, to bring the problem solved by
13 the invention forcefully into the examination process as a
14 necessary part of the obviousness determination, claims 12 and 13
15 were added, specifically stating that the communication was an
16 asynchronous communication, that is, one with no synchronization.
17 The examination appears to dismiss the problem solved as
18 unimportant.

19
20 Obviousness is determined from a view of both the problem
21 solved and the claimed solution. The court's obvious determination
22 should consider that simple or slight change may not be obvious if
23 the change solves a known problem of which the art had not
24 theretofore recognized. An inventor should not be denied a patent
25 simply because his invention embodies a solution which seems simple
26 and obvious with the benefit of hindsight. Rather, the suggestion
27 of the prior must be directed to both the problem solved the and
28 solution. Globe Linings Inc v City of Corvallis 553 F2d 737, 194

1 USPQ 415 (CA9 1977); CMI Corp Metropolitan Enterprises Inc 534 F2d
2 874, 189 USPQ 770 (CA10 1976); AE Staley Mfg Co v Harvest Brand Inc
3 452 F2d 735, 171 USPQ 795 (CA10 1971); Ellipse Corp v Ford Motor Co
4 452 F2d 163, 171 USPQ 513 (CA7 1971). Patentable invention may lie
5 in the discovery of the source of the problem even though the
6 remedy may be obvious once the source of the problem is identified.
7 In re Sponnoble 405 F2d 578, 160 USPQ 237 (CCPA 1969). The court's
8 obvious determination should consider that simple or slight change
9 may not be obvious if the change solves a known problem of which
10 the art had not theretofore recognized. An inventor should not be
11 denied a patent simply because his invention embodies a solution
12 which seems simple and obvious with the benefit of hindsight.
13 Rather, the suggestion of the prior must be directed to both the
14 problem solved the and solution. Globe Linings Inc v City of
15 Corvallis 553 F2d 737, 194 USPQ 415 (CA9 1977); CMI Corp
16 Metropolitan Enterprises Inc 534 F2d 874, 189 USPQ 770 (CA10 1976);
17 AE Staley Mfg Co v Harvest Brand Inc 452 F2d 735, 171 USPQ 795
18 (CA10 1971); Ellipse Corp v Ford Motor Co 452 F2d 163, 171 USPQ 513
19 (CA7 1971). The test of obviousness is not whether features of
20 secondary references may be bodily incorporated into primary
21 reference's structure, rather the test is what combined teachings
22 of the references would have suggested to those of ordinary skill
23 in the art. In re Keller, Terry and Davies (CCPA) 208 USPQ 871. The
24 fact that the disclosures of cited references can be combined does
25 not make the combination obvious unless the art also contains
26 something to suggest the desirability of the combination. In re
27 Imperato (CCPA) 179 USPQ 730. An inventor will not be denied a
28 patent simply because his invention embodies a solution which seems

1 simple and obvious with the benefit of hindsight. Globe Linings
2 Inc. v City of Corvallis 555 F2d 727 (CA9 1977). Patentable
3 invention may lie in the discovery of the source of the problem
4 even though the remedy may be obvious once the source of the
5 problem is identified. In re Sponnoble 405 F2d 578, 160 USPQ 237
6 (CCPA 1969).

7
8 Where in the cited references does it teach or even remotely
9 suggest to use of a sigma delta modulator for generating a pulse
10 width modulated binary signal for representing an analog input,
11 which binary signal can be communicated without synchronization.
12 There clearly is none. And the examination attempt to raise such a
13 suggestion under the often used phrase "within the level of
14 ordinary skills" is hindsight reconstruction. The obviousness
15 determination is not just one person's conclusion over another, as
16 the law provides a framework in which to properly determine
17 patentability. The invention is a good and solid invention
18 deserving of protection. With kind due respect, allowance of all
19 the claims is requested.

20
21 Respectfully Submitted

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